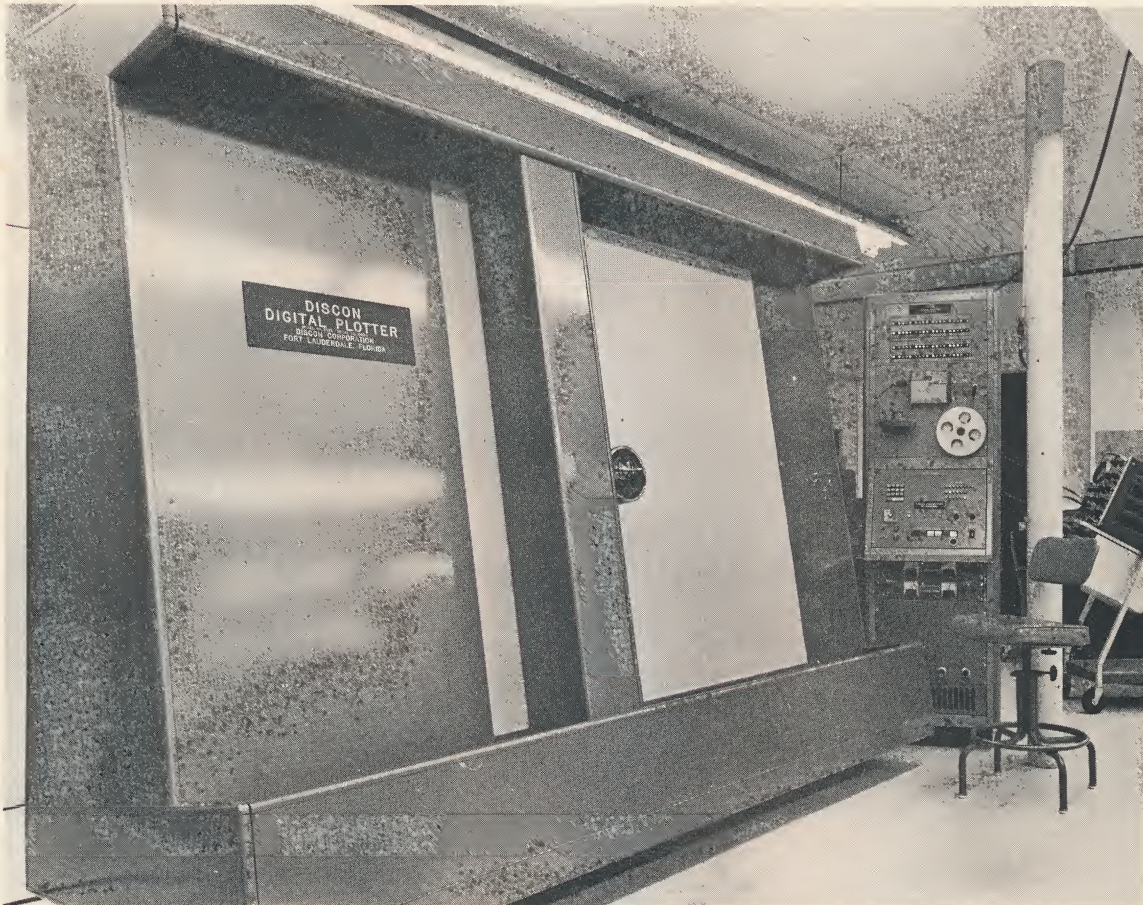


DISCON CORPORATION

4250 NORTHWEST 10TH AVENUE • FORT LAUDERDALE, FLORIDA 33309
PHONE: (AREA CODE 305) 565-5511

DISCON DIGITAL POINT PLOTTER

MODEL NO. 2073



GENERAL DESCRIPTION

Absolute position sensing is achieved by means of high resolution photo-electric readers traversing precision engraved 19 track linear encoder scales mounted on the X and Y axes of the plotter.

Driving force for each axis is supplied by motors moving in response to a pulse train which is generated so long as there is a difference between the encoder scale readings and the position command. As the commanded position is neared, vernier positioning is obtained by magnetic clutching and gear down.

200-650-11-9

By virtue of the digital position sensing scheme, the electronics system is digital throughout. Solid state components are used exclusively.

PRINCIPAL DESIGN ADVANTAGES

Original accuracy and resolution are assured for the life of the equipment.

Power interruption or a faulty information bit will not affect accuracy of continuing operation.

Completely digital system eliminates many error sources and maintenance problems in the electronic area and contributes to improved reliability.

DETAILED DESCRIPTION

The Discon Digital Plotter System is composed of a control console and a plotting machine. The control console accepts data in digital form and programs the plotting machine to position itself to agree with the input digital data on both the X and Y axes. The plotting machine is an extremely rigid mechanical frame upon which are mounted two absolute position, encoded optical scales.



Encoder Scale

Each of the encoded optical scales is scanned by a precision light source which causes a position readout to be generated in digital form. This digital readout is then compared with the digital input from the console

(the desired position) and the plotting machine is moved until these two digital numbers agree within the accuracy of the system. The inherent accuracy, precision, and repeatability which make this system so outstanding is due to the absence of any physical contact between the rigidly-mounted, basic measuring standard (the optically encoded scale) and the precision measuring sensor (the light plane), and to the high degree of precision to which an absolute position can be determined by the optically encoded scale.

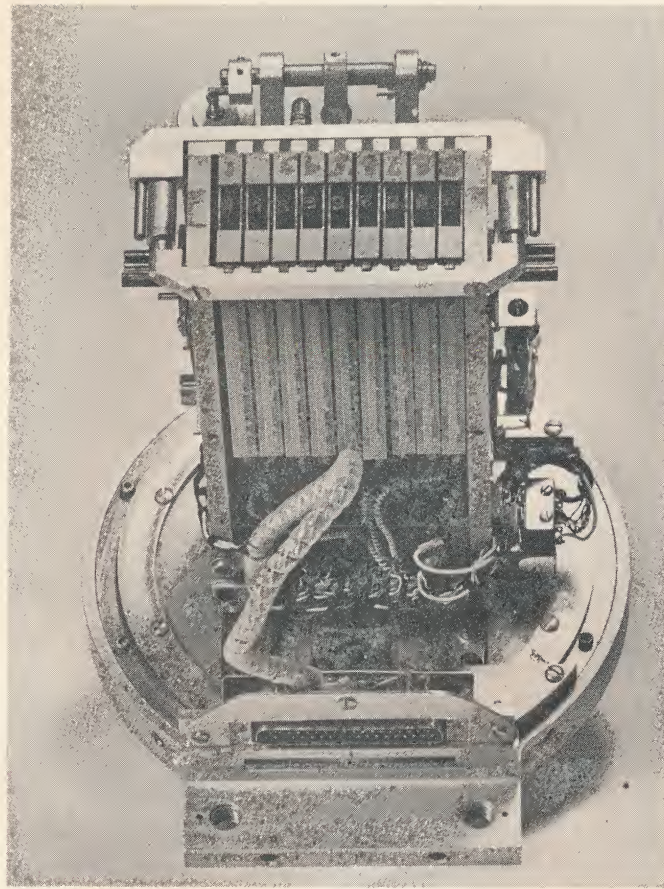
The plotting area is approximately 60" by 60" and this represents a square in the first quadrant with the origin of the axes (X and Y) situated in the lower left corner of the square. Each axis has a decimal digit input range of from 0 to 150,000 basic units, each unit being 0.0004" (1/100 mm) in length and a point can be plotted in this area to an accuracy of ± 0.002 " (5/100 mm).

The console is currently designed to accept input information for point plotting from either a manual keyboard, which is a part of the console, IBM punched cards, or a punched paper tape (RCA 501 Coded) - a tape reader being part of the control console.

The input information for point plotting consists of a manually selected symbol and three distinct numbers: (1) the Print Command Number, an eight digit decimal number in the range of 0 to 99,999,999; (2) the X-axis co-ordinate number, a six digit decimal number in the range of 0 to 150,000; and (3) the Y-axis co-ordinate number, a six digit decimal number in the range of 0 to 150,000. The Print Command Number is transferred directly to the plotting head and is printed on the chart together with one of eleven manually selected symbols or a blank. The X and Y axes decimal co-ordinate numbers are converted to their binary coded decimal (BCD Excess 3) equivalents and transferred to the plotter for digital comparison.

The plotting board is a plane surface, flat to within 0.030", and is designed to accept chart material in the thickness range of from 0.003" to 0.020". A vacuum system is incorporated to prevent any lateral movement of the chart after it has been initially placed on the plotter and accurately indexed at four margin points.

The printing head of the plotter prints out the point symbol (one of eleven possible symbols or a blank) in the center of the Print Command Number. The printing head is rotatable through 200° to allow control of the position of the Print Command Number so that it does not intersect with other points or with other Print Command Numbers. The printing head contains a pin-prick and a microscope to provide perforations for extreme plotting accuracy, high point density areas, repeatability accuracy verification, and to index the chart material at four margin points when it is initially placed on the plotter.



Print Head

The maximum plotting speed is 25 points per minute with points spaced 2" apart. The maximum slewing speed of the printing head is 2 1/2" per second.

The system should be operated in an environment free from mechanical vibration and at a constant ambient temperature in the range of $75 \pm 5^{\circ}$ F.

SPECIFICATIONS SUMMARY

Input Data

One of eleven (11) symbols or a blank - manually set in. (See Printing Head Table, Page 6.)

Point Symbol

Print Command Number:	Eight decimal digits, 0 to 99,999,999
X Co-ordinate Number:	Six decimal digits, 0 to 150,000
Y Co-ordinate Number:	Six decimal digits, 0 to 150,000

Input Data Sources

Point Symbol:	Selector Switch is a part of the control panel
Manual Keyboard:	Part of the control panel
IBM Punched Cards:	An IBM 514 Reproducing Punch is used as an IBM card reader
Paper Tape with RCA 501 Coding:	Tape Reader is a part of the control console

Accuracy

Plotting accuracy is $\pm 0.002''$ (0.05 mm) for points spaced less than one foot apart, plus $\pm 0.0005''$ (0.0125 mm) for each additional foot of separation.

Repeatability (Precision) is $\pm 0.001''$ (0.025 mm) regardless of speed, direction, or distance from which the point is approached.

Plotting/Printing Speed

25 points per minute with points spaced 2" apart.

Printing Head Slewing Speed

2 1/2" per second.

Plotting Area

1.5 meters by 1.5 meters (approximately 60" by 60").

Printing Symbols

See Printing Head Table, Page 6.

Temperature

System should be operated in a stable environment, free from mechanical vibration, and at a stable ambient temperature of $75 \pm 5^\circ \text{F}$.

Over-All Dimensions

Control Console:	24" Wide, 31" Deep, 78" High
Plotter:	114" Wide, 41" Deep, 88" High

Position Number	Print Command Digits				Point Symbols	Print Command Digits			
0	0	0	0	0	Blank	0	0	0	0
1	1	1	1	1	◻	1	1	1	1
2	2	2	2	2	△	2	2	2	2
3	3	3	3	3	⊙	3	3	3	3
4	4	4	4	4	◊	4	4	4	4
5	5	5	5	5	⊕	5	5	5	5
6	6	6	6	6	□	6	6	6	6
7	7	7	7	7	△	7	7	7	7
8	8	8	8	8	○	8	8	8	8
9	9	9	9	9	◊	9	9	9	9
10	-	-	-	-	⊖	-	-	-	- (Minus)
11	Blank Blank Blank Blank				●	Blank Blank Blank Blank			

Note: Point Symbol is Manually Set

Printing Head Table

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ATTACHED IS THE INFORMATION YOU REQUESTED ON THE
DISCON DIGITAL POINT PLOTTER

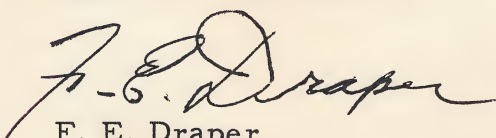
The enclosed data describes the Discon Digital Point Plotter in its original configuration.

Mechanically and electronically this plotting system was designed in the modular concept for maximum flexibility in meeting the requirements of various applications.

If you require line plotting, circular interpolation, other combinations or types of inputs, larger or smaller plotting area; these variations can be readily accommodated. We will be most pleased to provide complete information and pricing according to your specifications.

Sincerely yours

DISCON CORPORATION



F. E. Draper
Director of Sales and Marketing

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enclosure